of virus assembly at a series of different intracellular membranes), 'Transport of Membrane Proteins to the Cell Surface' (probably the weakest chapter in the book, since, although it is well written, it is already outdated due to the rate at which the extent of our knowledge of the components and mechanisms of this process is currently increasing), and culminating with 'Protein Sorting in Epithelial Cells' (which, whilst suffering from some of the practical problems of the previous chapter, manages to provide a commendable and concise review of the subject).

Any book in such a topical area will hold itself hostage to fortune in that significant advances in the field will rapidly make certain sections of the text obsolete. Nowadays, the 'Trends in...' and 'Current Opinions in...' series provide a forum for reviewing specific elements of these rapidly changing areas. This book complements such reviews with its more extensive background coverage; any research institute or University library should possess a copy.

George Banting

Intracellular Protein Degradation; by F.J. Doherty and R.J. Mayer, Oxford University Press; Oxford, 1992; xii + 61 pages. £8.95. ISBN 0-19-963293-6.

This book is one of the monographs in the 'In Focus' series whereby a topic is briefly summarized to give the reader an overview of the area and a feeling for likely new advances. Fergus Doherty and John Mayer have achieved these objectives; the text is clearly written with terms explained in a useful glossary. The 55 pages of text (excluding index and glossary) contain 6 chapters taking the reader from a simple description of the 'Protein turnover cycle', through sections devoted to methodology and mechanisms, and finally regulation and the implications of proteolysis in diseased states.

Given the size limitations the coverage is necessarily less than comprehensive, although useful further reading suggestions are listed. The bias is clearly towards protein degradation in mammalian cells and tissues, as bacterial and plant proteolysis are each given less than one page. However, the ubiquitin story is well told in terms of its role as a molecular flag or tag signalling proteins destined for destruction in most eukaryotic cells. I, and possibly the increasing number of 'ageing' biochemists, was pleased to note a section devoted to ageing. As many of us have suggested over the years, with age the intracellular proteolytic apparatus appears to become increasingly compromised in its ability to degrade aberrant polypeptides, hence permitting age-related accumulation of abnormal proteins. However some of us might take issue with the implied suggestion that ageing is a disease.. Nevertheless this book must surely increase interest in intracellular proteolysis, which was until recently a relatively neglected area of protein biochemistry.

A.R. Hipkiss

Molecular and Cellular Approaches to the Control of Proliferation and Differentiation; edited by G.S. Stein and J.B. Lian, Academic Press; San Diego, 1992; xiv + 426 pages. $125.00.

This multi-author volume is divided into three approximately equally-sized sections covering the 'Regulation of Cell Proliferation' (5 Chapters), the 'Cellular, Biochemical and Molecular Parameters of in vitro Model Systems in which Modifications in Cell Growth Control are Functionally Related to the Onset of Differentiation' (4 Chapters) and 'Exploring Mechanisms of Control' (3 Chapters). The stated intention of the editors was to present a collection of contributions that addressed the "basic mechanisms involved in cell growth control, emphasizing the coupling of proliferation and the progressive expression of several specific cellular phenotypes". It is in this latter aspect that the weakness of the approach emerges in that, as is so common with multi-authored volumes, the synthesis of information derived from a variety of sources is lacking and the level of reiteration of basic concepts and approaches excessive. In short the emphasis could have been rendered more significant by an extension of the two core chapters written by the editors, who it is clear have the breadth of knowledge to produce an integrated text. That said, the volume contains a wealth of useful information which is thought provoking and topical. Although the chapters are uneven in style, some being textual reviews with others presenting experimental detail in the context of a narrower content, they are all clearly presented with comprehensive bibliographic sources being given. Within each section there is a degree of reiteration and overlap between the chapters, but this, in places, ensures that the reader emerges with perhaps a clearer understanding of the commonalities between the systems chosen and the approaches used. Each of the sections is balanced but that dealing with mechanisms, ultimately the most exciting and challenging of the areas of study, was the least extensive and coherent in structure.

The section on the regulation of cell proliferation covers the role of growth factors and nuclear protooncogenes in the context of the control of mitotic division, the cell cycle and cell growth.

The section on the growth/differentiation relation examines the commonalities of effectors and mechanisms that are operational in relation to the phenotypic changes characteristic of osteoblasts, myelomonocytic cells, erythroleukemic cells and melanocytes and represents the essential core of the book, at least for this reader. The section on mechanism of control extends the discourse on osteoblasts and addresses the involvement of the nuclear matrix in gene expression and the histone modifications associated with chromosome condensation.